

- 1/24 -

## SEQUENCE LISTING

<110> F. Hoffmann-La Roche AG

<120> ASSOCIATIONS OF POLYMORPHISMS IN THE FRZB GENE WITH OBESITY AND OSTEOPOROSIS

<130> 21634 WO

<150> US 60/464,372

<151> 2003-04-21

<150> US 60/526,689

<151> 2003-12-01

<160> 35

<170> PatentIn version 3.3

<210> 1

<211> 30000

<212> DNA

<213> Homo sapiens

<220>

<221> misc\_feature

<222> (7061)..(7160)

<223> n is unidentified (a, c, g or t)

<220>

<221> misc\_feature

<222> (7344)..(7344)

<223> n is unidentified (a, c, g or t)

<220>

<221> misc\_feature

<222> (7438)..(7438)

<223> n is unidentified (a, c, g or t)

<220>

<221> misc\_feature

<222> (7509)..(7608)

<223> n is unidentified (a, c, g or t)

<220>

<221> misc\_feature

<222> (28902)..(28902)

<223> n is unidentified (a, c, g or t)

<220>

<221> misc\_feature

<222> (28954)..(28954)

<223> n is unidentified (a, c, g or t)

<400> 1

gaattctaga tttgccatta attttgtaca ctgaactagt cgcttgacat tgacattcat 60

tagggattgt gaagaacaaa agaaatagta atatgaagtt actgataaac ggtaaagcac 120

aatataaatg ttttaacaaca acgtcattgg ggagaggacg tgtcatcctc aggacaggaa 180

- 2/24 -

ccattagcaa cacaataaaa gcaaccaaca cttatgttct aggtgctgtc ctgagtgcac	240
tttgcacatt cattattatt cccatthttgg agaaaaggaa gccaaaggcat atagagaagc	300
taagttactg tccaagttag cagagctagt aagaaaaaga gaattcgaag cagagcctgt	360
tctacactac actttgtccc ttaagaaatg taattcctaa ctttctagag aatctgttat	420
tctttgccta gcagattgca gttaaaggaa caaaggthtt ctcattgtat tttgaagtac	480
acttatctat ggcttaagag aataaaagggt ggcttctaga caatggattc aaagagataa	540
gagattctga cttcactgca atthttgagat agtagagatt atacattcca gattctcatg	600
tccctagtct ctcgggtctca gcatgcccc gctgaactc atcatttccc catagtcattg	660
cacttgthttc tttctagtat tttctatatt gttgaaagggt accaccatac cttagtagtc	720
caggcctggg aggcagtctt tttttttttt tttttttgag acagtctcgc tctgtcactc	780
agactggagt gcagtggcgt gatctctgct cactgcaacc tctgcctcca aggttcaagc	840
aattctcctg tctcagcctc ctgagtagct gggactacag gtgcatgcca ccacgcccag	900
ctaathtttg tathttctgtt agagatgggt tttcgccatg ttggccaggc tggctctgaa	960
ctcctgacct cagatgatct gctgccttg gctcgcagt gctgagatta cagggtgtgag	1020
tcaccatacc tggctgtggg aagcagtctt gattctacct tttcctcat tccctcact	1080
caataggtat cacatgctgt ttgggtctact ctgactcaaa ttcccttctc tccctctcta	1140
atgctactth cttagthttgg accttacct ttctcaccag gattatggcc ataggatgat	1200
aatggctctt cttatctcca gtatttcccc tccatattcc aatagacatt ttttctgaaa	1260
tgcaaatctt ttgcttaaaa tccttactaa taatatatat tttcatttag ggtaathttg	1320
tgttagaatt cctaagttta actttctgac aataathttt tgatcaatta ttagaaaatt	1380
tttgthttct gtcttacagt tctaacaatt gacttctaag catttgtaaa agcgtagaaa	1440
cattttcctt tgaataagaa tggaagaagt aaaacactct ccttggctta gctathttga	1500
agtgattccc tttcaccaag caaagthttta tttttcactc ttatttctac ctttgaacaa	1560
taaacatttc aaatatgggc caatataatt tcttccttta tgaagacatt atthttgtat	1620
gtagthttat acatgattat tcagaaatag aaaaaccact ggcacgttac tgtaatactt	1680
gggtacattt atcatgaata aatgthttgaa tataatgaaa gtattagtaa ttaatagtht	1740
atgcccaggt tgagccaaat gthtttagaat tagtgthttg tacttgctta tctgthttgt	1800
tgctgactgc tgtctthttt tggatattgc tthtttaaata cttgctgatg attactaaac	1860
ctggggaagt aattcattaa ttgtaattgt ggggtgttata gtcctaaaat agtattaacc	1920

- 3/24 -

ccttgtttaa tttattcctg ataggaccta taaacaaaaa ggacaaagga agaatactat	1980
tttctcctag aataaataga ggcattaaat tagtttagca taaagtgtta ctacaaatgt	2040
aaaactctta tataaagtac taaattggag tgtcaataag gatatatgtc taggtacagc	2100
atctctcagc acggtgttcc gctggtgcac tgttattcat tagaggctgc tttcttaatt	2160
agaacacaga aaacctttat cattactatt ttctgggatt atggcatcct aaaaagaatc	2220
aatagcaatt tctaattatt gtcacatcta ttaattgcac tggcttgaat agtccctgaa	2280
tagtaggttt cttttctggt gaagaattat ttagcctgca gttaaaggac atgagaatga	2340
tttctgagtg ttctgttagg aactaaggat ttaaataat accagttcag tgtgatatgt	2400
ccattttattg aagatgcgtt tgggtttttt tttgtcatca agtcataagt gttggatgag	2460
tgccataat ttcgataggc tttatcatga taggatgctt atcatttaca aattttgtga	2520
aattcaaata aattattaaa ttctaaaatt ttatgcacag ttgagtattc agaagagtat	2580
ttccttataa ccacatgaaa aaataagtct catccatact caacccatga atgataagaa	2640
tgccgacctc atgacgttaa taaaaatcta cttccttcag acaattggat tcttacccaa	2700
atcaaacttg tgactgagtt agattttttat ctttaggaat tcttgaaata gatatgttat	2760
agttcttttt tctgtcacct cctttcagat tttcctatgg attctagtaa cggaaaactgt	2820
agaggggcaa gcagtgggtga gtatatcatt atcttcctgg ttttcatttg tggtcagatt	2880
agtcattgat gtaatttaga tacttaagtc attcatgggg aagcttgtgc cctacatttt	2940
acaagtaaac tttttaaaat tccctcattt atattaattt tattttttaa attagcacgt	3000
agtaaaattg gacttttatt tggacatata gtttgggtaca gatgaatttt aatattatgt	3060
agagatttat gtaaccacca ccacatcagg atacagaaca attccatcac ctcccaaac	3120
tccttcaagc tgtatccctt tataattaca agttttccct atcttcatcc actggcaatc	3180
actcatcttt tctttatcac tatagttttc tctatttgag gttcgattgt ccatatagac	3240
agactgacag tacgcctttg agacttaacc aattgctgca tatatcaatg gtgcattcct	3300
ttttattaca gaatatttta ttacttggat gtatgaccat ttgttcaccc attcactcct	3360
tcaaggaagt ttgggtgtgc tccagtttgg agcaatcgcg aatagagcta ctataaacat	3420
tccagtacag gtttttgtgg gaatgtaagt ttttattttc ctaggctaaa taagtaggaa	3480
taggatcact ggggttatatg gtaagtatat gtttagcttt gtaaaaaagt gccaaactgt	3540
ttccaagatg gctgttcaat tttgtgctag taatgtataa gagttccagt tgttctatat	3600
ctttgcgagc ccttggtatt atcaatatat tttattgtta gccattttaa taggtatgtg	3660
ataatagctc atcatgggtt taaattgcat ttccctaatt gctaattgat ctgaatacat	3720

- 4/24 -

tttcatgtgt ttatttgcta tccacatata tgcttttttg taaaatgttc aataattttg	3780
cccatTTTTaa gttgggttgt tttcttaatg agttctgagg gttctttaca tattctggat	3840
acaaaaaaca tcttttggtt ttattcattt tctctattgt ttcactgttt tcaattttat	3900
tgattatttc cttctgcttg cttgcttttag aggtttatTTt tgctttttct tttgtttctt	3960
agagtagaag cttatattgt gttttgagac tttttttttt tttttgagat ggagtcttgc	4020
tctgttgccc aggctggagt gccgtgatgc aatctcagct caccacaacc tccacttctt	4080
gggttcaagc aattctgcct cagctccca actagctagg attacagggtg tgcaccacca	4140
caccagcta atttttgtat tattagtaga gacaagattt caccatgttg gccagctgggt	4200
ctctaacact tgatctcagg tgatccacc accttgccct tacagagtgc tgggattaca	4260
cacgtgagcc accatgtccg gccaaagacct ttcttctaata ataatgtaata gctataaata	4320
cccatctaag aatgacttta gttgcatctc acaaattttg atagtttcat ttttcttcag	4380
ttcaaaatat tttatatttt tccttgatat ttcttttgac ttgtgcatca tttgggatta	4440
tgctgtttta tttgctgctt tttgaggatt ttcttattat ctttgctatt tttcaaattc	4500
tactgttgaa gaataactt tgtgtgattt cagttctttt agatttatta aggtttattc	4560
tctgatccag gatataatct gtcttggtga atgttccatg tacacttaga aaaaagagta	4620
ttttgctggt ggggtggaatg tcctttaaat gtcaattcaa tttagttgat taatactggt	4680
atttagttct tttatattct tgctgatttt ctgtctacta gatctattga ttaccgagag	4740
aagggtgatt aggtctccaa atattgtgga tttttctatt tcttttttca gtctgtcagt	4800
tttgcttcat gtattttgaa gctctgtttg gtacatactt gtttaatat ttttatgtct	4860
tattggtgaa ttgatgtttt cattatgtag tgtcctttta tccttggtaa ttttctctgc	4920
tctaaattat attttttctg atattgctat aggtaattca gctgtcattt gattagtgtt	4980
tgcagggcaa aactttttct atcctacttt taacatactt aagtcattgt gttttaaata	5040
catttcttgt agacatcata tagttgggtc tttttaaaaa aatccatact gttgatcttt	5100
gtcttttgat tggatgttt tgaccatttg cagctaattgt agttattcat atttgtattt	5160
agatctactg ttttattttc tgtttgtgcc ctctcctttt tattcacatt ctcttctttc	5220
ttttggattg tatctctctc tctctctctc acacacacac acgtatgtga gatatatata	5280
tatcctcatg agataatttt atattttttc ttttaacaat tacatatctt ttaaacaact	5340
tgaggagaat agtagcctac tgtattttta cagatgtttt aatttctatt attcttctt	5400
cttttccaac attccatact tccttctgggt attctttctc ttctgttctt cagacagaag	5460
ttctgtctga agaactttct taagtatttt ttgtacttgt tttaaagcag ttctgctggc	5520

- 5/24 -

aaaaacttct tttttccttt acctgaaaat attctcattt caccttcatt cctaaaggat	5580
attttcaactg catacagaat tctaggtttg cagtacattt agcacataaa aaatattcca	5640
cttccttctg gottcaatgt ttctcatggg aaattggcag tcttgcaa attggtttcc	5700
ctgtaagtaa tacatcagtt ttctttgggt gcatttgatt tttttttcct gtgtcttttag	5760
tttttagtgc ttttaattatt acatgtctgg gcattgatcc ctttgagttt accctgttta	5820
gggttatctg agcttcttga atctataaat ttataatggt agccaaattt gagaagtgt	5880
taggaattat ttcttcaa attgctttt tacacaatag tctcttctat gatgatatga	5940
atgtagatc ttctgatatt gttccacagg cccagagag gctctgttaa ttttttctcc	6000
taatcttttt tctctcttgt tttagattagg taatttctat tggcctagcg acaagttcat	6060
tgactcttcc gttggtcttg ttcaatctcc tactctctga aacacatcca gatagttttt	6120
atgtgttagt atatttttca aagttaaaag ttccatttga ttcttcatta tattttgtat	6180
ttctttggta agactttcta tttttccatt tatttcaagg gtattcaccc ttaatttgtg	6240
aggcatttta atcatagcta ccgtaaagtc atctgtgtca cctaattgtc ttgtcccact	6300
caagtcaaca tttttttctc tacatcttca tgtgtagagt aattttgggt tgaatcctgg	6360
acattttgaa tatcatgcaa taaagctttg ggtcttgttt acttaaagtt atatggaaaa	6420
tgctgatttt ctttttttaa ttttagcaac agttaaccta gtaggatta ggctgcaaat	6480
tctgactggg cttctgtggg ttgtgatttt aatgtcagtt ccatttccaa agccttcgaa	6540
gtaccttcca tatctatccc acatgtatac cactcagtg ccagtatgag gtcagagcaa	6600
tactttatcc tacagtgcag tttttgaaat ctgtgataca ctgttttatg tcagagtcac	6660
acatgcccag gggtgacttc agtagttcat aaacaacttt acaaaatcct ttcccaggct	6720
cctttatctc tctgatctcc cttgcacttt tcagttcctt ggaattcccc cgttttggtc	6780
ctttggctag aaagctttat cctactctgt gatttgcttc ttgtgactgc tccttcctat	6840
ggggccaagt ggtgggagga cagagaaaga gagagagaga caaagtaatg gggatttgcc	6900
ccagtctttt ggaactacaa gtcctccaat cagagggtaa gattctctcc ttcatcaaag	6960
ttttgggctc ctgaggggtc cccttggtgc agccgttgct gttaccacag tcccaggatg	7020
cctggaggaa tggaatgcaa gaggctgata tgtagagat nnnnnnnnnn nnnnnnnnnn	7080
nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn	7140
nnnnnnnnnn nnnnnnnnnn gaattctacc agatgtacaa aaaagagctg gtaccatacc	7200
tactaaaatt atccccaaaa ttgaagagga gggactcctc cccaactcac tggcaggcca	7260
gcacatcct gataccaaaa tctgacaaca gacacaacag aaaataaaat ttcaggccaa	7320

- 6/24 -

tatcattaat	gaacattgat	atanaaatca	tcaataaaat	actttccagc	cgaatccagc	7380
agcacatcat	aaaagtaatc	caccatgagc	aagtaggctt	ccttcccaga	tgcaaggntg	7440
gttcacatat	gcaatcataa	atgggtattct	cactaagaga	ctaagacaaa	acaatgatat	7500
ctcatgagnn	nnnnnnnnnn	nnnnnnnnnn	nnnnnnnnnn	nnnnnnnnnn	nnnnnnnnnn	7560
nnnnnnnnnn	nnnnnnnnnn	nnnnnnnnnn	nnnnnnnnnn	nnnnnnnnng	attctacagt	7620
atgtatTTTT	gtatatgcat	gtgacttcct	atgcttttca	ttaggctgtg	tatagcagta	7680
gtttttcact	ttaattgcta	tattgtattc	tatcattgaa	tgtggtacac	tttattcatt	7740
ctaattgtca	tggatatttg	ggttgttttc	agtttttggt	acaatgacta	atgctgcatt	7800
tattttctaca	atatgatagc	tgcatgaggt	accatatatt	ccatttcact	ttcctgtagt	7860
attttgcaact	gattttgggtg	agtatgtcct	gccttataag	gtgtcttata	tgtggaaatg	7920
gaacatttat	tttattaagt	tgtaaataag	tttgaaatat	caactttcat	tacattggga	7980
cagttttctc	tgttgacttc	cactgaatct	tatcatgggtg	atatgtttga	tctgagggaa	8040
tgtctaccaa	aggtgtccca	acaaatattt	atcccattaa	atacataagt	aaattaaaat	8100
tatttttagaa	ttgttttggt	actttatata	attgataatg	tttttcaata	tcatgaaatc	8160
agttggaaat	cattgctgtc	cagtaatggt	gctatttgaa	gggtcactcc	ttctattatg	8220
ttttctcaac	ccgaactgaa	aagctcattt	gtataaaaact	gcaattgggtg	gggtcaaaatt	8280
tctggccaag	gacatgtata	tgttaccaat	ttgttccaaa	gttatgggtta	gagtaatata	8340
gcacttcaat	gtatgaaaga	aagaaaacac	atcaacaaca	ctatcaacaa	tatacaaaaa	8400
acagttcaac	atgtaaaaact	acctagaacg	aatgtgggtg	tctcagagtc	agtgtttact	8460
gttcgtcttt	taaaaatggt	ttccagttct	ctggcataat	gagagtgatg	aaaacaaata	8520
ggcaaaacca	aagctcattc	tgtttgtgaa	aaaaacacta	acatgttcac	atgttctgaa	8580
aaggaaatat	aatttggtca	cactcaaaaa	tttatgcttt	ggagaaatgt	aacagctgag	8640
gttgatcatg	ataaaacagg	aatgaggaa	ggcatgaaaa	cactgtaacc	cacataagga	8700
cctctttcca	aagtgtcaag	ctgtttctgt	ctggaatttg	gaaaagaaat	tctttcactc	8760
tagttaatat	attctttgcc	tcaaagctta	actatTTTT	ctttttcttt	ttttgagata	8820
atgactctga	acagcatcca	actgtacgtt	ttactgttgc	aaattcacta	ttgtaataag	8880
gaatagatgc	tctttatttc	catagcgtgt	aatatggagg	aaaacaattt	ttgttctatt	8940
tcacctagtc	acttgatcta	tcaaatcagc	acacagaaaa	ttaaagcaga	tattcaagtg	9000
gtccaatgca	aagggttttt	tttaattaaa	ataattccaa	aaagtaattc	ttccaatttt	9060

- 7/24 -

ctgctttgtg aggggtgacca atttatgaac tttcacattt gaaaaacaca aatgtctcca	9120
gagcggagat agagttggta aattctgaca ctaaataatat aaatgtgacc aaattatttc	9180
ttggggcctg tttcctaata taaaatcaga ttgtattgat ctgagttccc ttctgattta	9240
tcttaaatta gggaacatta gtgtaagtca gatgctctcc cagagttttc actaacctgt	9300
tcttggcgct gttccaaagg tgctccagag aagctcctct gggtagctgc ctgggtggcca	9360
ctgagcaact ggagattcct gatgactgca gctgccaggc ctgccagcc actcccactt	9420
ttgctgacat gatttatgct tagcttgggt agtatagacc cattccctct ctttctttct	9480
attacacttc tttcctccct tctggcttac taccaatttt gggaagaagt tcagtttttt	9540
tctttggtac aaatgtttac tgactgtaga gccaacttcc acaccttatt ggaaaaaaaa	9600
ggatagacaa atagtatttt ttgtatttta cagtagctta aaactatagg attttttttc	9660
cccattactt tgcaacaact gatacttttg accagttctc tttcctaagc atttctctcc	9720
ttgagctatt acccaaattg tcctagttct tctctgcttg tccctcagct atagacagtc	9780
actgaggctc tgtgettggc ttctgttctt ctctcctcat agggattcct cctggtggag	9840
ttcatcaagc tacataggct gaattatcat ttttatgact ctagttgtga ttactctcta	9900
ggaccacatt tcctcctgt aacacttcta cctgggtact ctttgagtac ttcaaaaata	9960
atgtatttaa ttactgaagt tgtttttttt ttgttttttg ttttgtttg tttttttgag	10020
atggagtctc actctgttgc tcaggctgga gtgcaatagc acgatctcag ctcaactgcaa	10080
cctccatgtc ctgggttcaa gcaattctcc tgtcttagcc tcctgagtag ctgtgattac	10140
aggcaccgc caccacgcct ggctaatttt tgtattttta atagagaagg ggtttcacca	10200
tgttggccag gctggctctt aactcctgat ctgaggtgat ccaaccacct cagcctccca	10260
gagtgtctggg attacaggcg tgagccaccg tgcccagccc tgaagtaatt gtttaattaa	10320
aactttctct tttgtaactt tctcatttaa gtatgtgaca ccattgcttt tctaagtccc	10380
tagtactgaa actttatttg gttttagtcc accgatctca ccattcatta gaaatgtaat	10440
gatttgtcct gccaaaaagc ttctgcacat caaaggaaac aatcaacaaa gtgaaaagac	10500
aatocataga atgagggaaa atatttgcaa agtatctggc aagagcttaa taaccagaat	10560
atataagcaa ctctgacaat tcaatagcaa aaacaaaaca aaaaacaaca aataatctaa	10620
aaatgggcaa aagatctgag cagacatttc tcaaaagaag acttacaaat ggccaacagg	10680
tatacgaaaa cattttcaac atcactaatc agataaatgc aatcaaaaac cacagtgaga	10740
tatctcacco cagtttgaat ggcttttatc aaaaagatgg aacaatagac ggtagcgagg	10800
atgtggaaaa aggggaactc tagtatactg ttgggtgggaa tgtaaattag tatagccact	10860

- 8/24 -

aaggaaaaca atagggagtt cttcaaaaaa ctaaaaatag aactaccata tgatccagca 10920  
atatttattac tgggtatata tccaaaagaa agggaattaa tacattgaag aatatctgta 10980  
ttccaatggt tactgcagt ctattcacaa tagccaaaat gtagaatcaa cctaagtgt 11040  
gattagtggga tgaatggata aagagaatgt agtatatatg cacaatgaca tattgttcag 11100  
ctattaaaaa aaagtgaat cctgtcattt gaaggaaaat ggaactggag gtcattatgt 11160  
taaatagaat aagccaagcc cagaaagacc aatatcacac gttctccttc atatatggga 11220  
gctaaaaaca gaaaaaagtg aatctcatgg agctggagag tagatttgtg gttatcagag 11280  
gctgggaatg gtagcgtgga ggagggaatg aagagaggat gattaatgag gacaaatata 11340  
cagttagtta ggaggaagac ctagtgtttg atagatcagt atggagacta tagttaacaa 11400  
taatctactt gtacatttca atagtacaa taattcacat gttcacagca taaagaggaa 11460  
tgtttaatgt ggtggatatt accctaactt gatatttaca cattatatga atgtatgaaa 11520  
atatcaatgt actctgaaaa tatgtccatc tattatgtat taataaaaaa tataaggggac 11580  
acttactcgt atcaggcaca atagtgtcca atgacatgga atgaaagagc aaatagggtga 11640  
ctggcactcc ctttcttttc acctcttttc aatacttggc attgagtgga cacatgggtg 11700  
tctagaggct gtgaagcccc ctttcttttc tgtaattga cttccttaga gtctatctca 11760  
aaacaacact tcagaagtca tgagggaata caagcataat tgtattgact ctttctatat 11820  
tttgatatt ctgaataact cttggatgca gaaaacttgt gaaaggcagt ttatttgaaa 11880  
ttttccaaag acaaaaagga ataaactgaa tttccttttc ttattaatat agcgttagtt 11940  
ctgtcagtct taagcaattt cttttacaaa gtgcaaatta ctgtgaattg agtcctttat 12000  
tacaatattt gaggtttgtt ttacagcta agttgagcaa atgttacttt tactttgtaa 12060  
agccttggtta tatcgctag gttcaccagt caacttcac acattttcca tatactgggtg 12120  
taatccaaaa taaaatttaa tatgatattc tttgccctgt gtatagggtg aggaaataaa 12180  
tattgtttta cataggtaat gaatggttac taagtcaaga cacacttcct tttataaaaa 12240  
aatgaaagaa atgtcttatt ttttggttaat aggactttat taaggataaa tttatttaca 12300  
gtaaaatact acaaatctta agtgatgtg gcatttaaatt tttgacaaat gtatatattt 12360  
atgtaaccat catccagatc aagataaaga acatttattt atttatttat ttatttattt 12420  
tgagacggag tcttgctctg tcgccaggc tggagtgcag tggcgcgac tcagctcact 12480  
gcaagctcca cccccgggt tcacaccatt ctctgcctc agcctcccga gtagctggga 12540  
ctacaggcac ctgccaccac gcccggttaa tttgttgat ttttagtaga gacgggggtt 12600  
cacctgtgta gccaggatgg tctcgatctc ctgacctcat gatccaccg cctcggcctc 12660



- 9/24 -

ccaaagtgcg gggattacag acgtgagcca ccgcaccccc gcctaaagaa cattttcttta 12720  
aattgtctgg tgtcttatca cccattctgc cctgaggcaa gcacagttct gatttttcatt 12780  
gccatagatg ggtgtcgta ttcagcttca cgtaaagtga agcatactgt acacacttgg 12840  
gactggctgc tttggcatac catggcattt ttgagacttt gagttctgtg catcatttta 12900  
ttctattttct aattgtgtaa aagtacacc c ttgtatgagc ataataccaa tatgacttct 12960  
atatggttcc tagtttaata tagttgattt ctgaatctgc aggagttgtg ctgttggtgt 13020  
tgttgttggt gttcggtttc ttccctttca tcattgacac caggactcta gggttcgggt 13080  
gttttggttg tttgttaatg ccctaggaac aataagaacc tgcgggtttt ccattaagtg 13140  
tccatttgat gacttgcaat tttgggaaga gggaaatgtg tccatggggg ggaatctagg 13200  
gatgttttac tatgccttg tttctagaag gatagtggaa ttgacctgct gaatggccaa 13260  
tggttatatt gccatcttc tgttttaagg actatctgaa caagtccac catggcatcc 13320  
attcctgctg ctgttttgat agctgtgatg ataaggtaga tgatccatct agtgcactga 13380  
ttctttcact ttactaacct gcttgtctat tctaccccag ccactcactt ccatgagcag 13440  
ttctgggcct ttcagaggtg ctagcagtg tgccagcatt gtaatattaa ttctaagaat 13500  
cccatacttt gcctgctgcc tctttacatt tcacatgatt tgatgacaca tcatcactgc 13560  
tgctactgat tgttttctta ccatgttgag attacctatc catcagctac tgcttactat 13620  
ctgctaagcc actggccttc ttgtctatgt gagatatcat ggtctactgc aatactgata 13680  
cccttgaaga taccctcaat ttctttgctt tctcttctc ttccatactc atctggcaaa 13740  
tcccaactcc agttatttga gaaaattact caactgaggt gactgggttc actttaaat 13800  
caagatagaa aattcaaata gacaatcaag attgccaagc attcttacc actataaggt 13860  
ttgcctttct atttgatgaa ataactgctt tatactttct ttgcttacat gccacatcc 13920  
tgcttttctg agcccctcat tcccatagc tgatgacttc acttcattct tcaatgagaa 13980  
ggtaaaagcc attggaaaga acaccctcat tattccacca accaatttat aaacttgtca 14040  
atatcagtac ctttctctcc ttttcttct tgtgtagtgg ataaagtctt ctagctttca 14100  
aagtcctatt ctctcttttg ctccaggtcc agtcatcacg ttgccagttg aatttagtgg 14160  
acccttttct ctctgaactc attttagctc tgagggtcat ttgacacaga ggactaccct 14220  
gcttttattt tggaagacgc tttttcaatt ccacactctc ctgtatttcc ttccacatca 14280  
ctggatgctg cttctcagtc tcttttatgg acttcatatt ctctgtctta tatataaaga 14340  
ttagttcct gcctagagaa ctacaactca ccaaagctt taaatatcat tttctcacgg 14400  
tatattggag gccagactag tttaggtcat taagttatat gttcttatta cacatatata 14460

- 10/24 -

ttgtgtttta atttcatgtc atgtatcaca tgtgacaaat tttttgtgt gtactttctt 14520  
tgttcaatgt ctttatcctc ttctggattg tctgtagtgc ccatcatgtg tcctacatgc 14580  
ctatcacaga gcctggaatg tagcagatgc ccaatatttg cagaatgaat gaattcatat 14640  
gtaagtgact gaaagagttc aacaaatgtt agttctcttt ccctttctca tctcatattt 14700  
acagaagaat ggatacacca gagttatgga gtcagaagat actactatca gttctacaga 14760  
agaaagacaa attcatgggtg tgatggatgt taccagatgt taaaaattat ggaactgtta 14820  
aaaatttttg aactgctcat agatacctcg tacaggcagt tggaaatata gatctagagc 14880  
tcagtaaaaa agtcatagtt aaggacctgg atcttcaa atataaaattt tttttttat 14940  
atcttttaaa atgtgttgtg ttttgctcct atgtgtttta aaatggagga aaagaggaca 15000  
attgggattc aggggtcaaa tgccaggata tgagacttac agtgcactcg gtaaaaatta 15060  
aatgattta aactctgac tgattagaaa aggtcagtct tgaaaaagtt ataaaggaga 15120  
ttgtaacaca aatacaattg tttttcttc tctcctccc catagttttt gacaataaat 15180  
cctaagcaca gatctgaggc ttttttctc agaaaaaaca gaaaaatac cactcaaaca 15240  
tagtagtctt ccaaagtcac ggtacatgaa aggttatgag agtttgggga tctgatgaag 15300  
ttaattatag tcttacacct ctggataaga cccaaaagca ttcaatttca aacaaaggtc 15360  
agggatagtt agaaagtttt atcacacgta agcttgaact caaacaatgt tgcattaaat 15420  
agtgcaggtc cagtgcagt catatttcat agctgtatca gggacttaga cttctttaga 15480  
tcttctaaga tcatatcaaa aatactagta tccttttggt tttaaaaaat aaatgagcat 15540  
atttgtatga gcaaaactga ataaagaagg ctaagattct tgtctcctc gaactatttt 15600  
gatctttata agaagctact ctgaggcagc aaggctgttc actgctcggg cactgcgtgt 15660  
atcatggggc atttcccctg agctgcagac taacttctgc gaagtactgg gcatgttaac 15720  
tttgcaaact cagatttctt tctactaggg tgataaactc atgtttctat gaaataaaca 15780  
gtctccaggt tcattagcag atatgtagga gatcattagt attaggagag tcactagaaa 15840  
aatcaagcaa gaggagtga aggaatgtga ggaagaacta agctgaaaat agttttctgt 15900  
cctttccatg gctgctggta aatgtagcac tgcactctgt ccacaaattg aaggattgt 15960  
attaatttca ggctttgagg taaatgaatt gctaattgta aaactgcca tgtttgaaga 16020  
tctctttgtc actacttagc ctattttgtc aaaaccaact cttttaactt ttaaagtatt 16080  
tttttttctt tacataaagc accaaggcag atgctaattc atttataagc ttttcttctc 16140  
aacagtgaac tacagaaaaa tcaatatcta atggtttttg tgcaaagctc agtaaataat 16200

- 11/24 -

agatttcatt ttccattcta aaaaacttgt gccattagga agttgggaga ggaagattac 16260  
 tagcaattaa acaagaaatg atggtaatgc tacaggcccc caaaaaagag tatcaagaaa 16320  
 tcaactatag gtaataaaaa taaactgtta catctgattt agggtagcag gcacaaaaaa 16380  
 ggtgacagct aatgcatgca acatacctct ctctgattct tcacaatttc acagttcttg 16440  
 ggcttggtgg gatgtgtacg ttgatgtgtg taaacataat tcagatgagg attatgtttc 16500  
 agatctattg atctaagata cctttttcat gaataaccta agatatgaat ttttgggttg 16560  
 agtaagcata aatgagagga ggttctttca tatttgagct ttgtggatat aaactcagct 16620  
 tctccttatt actgttattt tatcgagcta cttgaactat acagataatt tgcttatggc 16680  
 aagagctagg gattgggaca tattgtccca tataaatatt taaaatatat atttagtatg 16740  
 gcattgtcac cttggagacc agcagaaata agaagtatat tgcagatgag caaaatttag 16800  
 tcccgagaat atttgcttag ctcatagct gttaggtaat agtctagcta tgtatatgta 16860  
 gttgtatgca tagctttgta aatgcctact tgaaatatta ctaaatcatt ttgtaatata 16920  
 atttaaaaaa atccctgcct ggaaagtfff atggaatcca tttgtttatg ctccaagcaa 16980  
 agatatgtaa gtaacaacat caaattagac tcaattcagt gacagttgct atagtttttg 17040  
 caaaaatttt ttatttgagc acatgcaaat ttctgaagaa ttacaaatgt gtaatttatt 17100  
 tacatgactt atttttgata gatatttatt tttaagtaga aaaatcacaa gtctatatat 17160  
 ggatgaggat aatttataaa cctaatacca taaaatttta cgtcttcaga aatattctca 17220  
 tctcaagaat atctctttaa aaatacatgt aacattttaa tacagaataa aatacagaac 17280  
 gccaaaagct aggttaacttt ttgttctctt ttaaagata atacaatcat tttgctaata 17340  
 aagtattttt tggaatagtt tttgtcaaaa tagcaacaag cactaatgtt actcattggt 17400  
 tattggctga gatcttcaca gaaattgtgt gctaaaaatt atcaggagaa caagggaagg 17460  
 agctgtgtgt ggtattgagg aattctcatt tctgtcatgg gcaagagcaa cagttgctgc 17520  
 tgctacctat cccagtaga gatacttatt tctotggcag gaagggtgat actcttttcg 17580  
 ggactgctat gttaaagtgt attattgaca agttcaactg gaaataaaaat ttattttcat 17640  
 tagaaaatac aagtgggtcaa caaaagcttc tgccctttat tgttcccat gttaacataa 17700  
 aacaactttt ttttttttt gagacggggt cttactctat caccagctct ggagtgcagt 17760  
 ggcttgagct tggctcactg cagctttgac ttccagggt caagtgatcc tccaactca 17820  
 gtctcctgaa tagctgaaac tacaggcaca tgccaccaca ccagctgatt tttgcatttt 17880  
 ttgtagagac ggggttttgc cacattgccc agactgggtc tgaactcctg ggctaaagca 17940  
 attttttttc cccaccatg ttggcctccc aaagtgagtg ctgggattac aggcgtgagc 18000

- 12/24 -

gcttgtgccc agccataaaa tgccttttaa gtgaaacttt ttttgttgat gtcctttctc 18060  
taatttatgt gttcttattt cctttctgtg tcaaaagaga agcacatacc atttaatttt 18120  
tactaaagct ttctcagggg cattatttaa agaaatcttt acatataatt aaatatttta 18180  
aggtaattgt gtattatttt ctacttttat attgacatta attcctgaca atttgccatg 18240  
cttatgatgt atatgtctta gctaagtaat attagctttg tagctcttct ataaaaggta 18300  
taataatcta ctcttcaagg tgtcaaata atctacccta tagatgaaac attttgagat 18360  
aattagaatt gttattatta tgatggccaa aaccacaact ccttttgtac caacctaata 18420  
tatacataaa atatgcattc tggtcactac tcaccaata ttgttaaaaa atgaaatttc 18480  
tcttttcaaa atacctgcat aatttcctcc aacaagcaca aaaataccat tgagttgaat 18540  
ggtagctatt ttacctatag aaggggctca ctgcccctct taagaacttc accaagttca 18600  
ctgggttgta ataacacttg cttatctctt tgagttgctt tcagatctag gagctaatag 18660  
taggaggagt actgtgtcgt ctgttaaaag taaaaaaca ttaggtgata gtccacaggg 18720  
caaaccagct acctgagcat aggcagaaaa ttgcctccca gttggtattc ataataataa 18780  
tacttccata agcataaagc atacctcttt caggattaag gggcatgct cttctcatgc 18840  
atgggggtga acagcatttc ctcaggattt ggggtggttg ttgagaatgg aaactcgttc 18900  
tcatgagcat actgacattg aataagagga catgtagata gaataaacat gaatgtagtt 18960  
ccaggagaaa aaattcagac acacagaatt gacaagagcc ttctcaccac caaattgaga 19020  
tctagtctga gcaaaaaatg tgagtctgag caaaacaaaa gaaagctaatt attggaaatg 19080  
tgcttataac taaaatgtgt ttttcagaac gctgtaaag taagcctatt agagctacac 19140  
agaagaccta tttccggaac aattacaact atggtaagga aaatttcatt gttgatgtat 19200  
aaactgctgt gttaagagag gtgtgtggat gcacctatga ggatgtgcac atgtaaacga 19260  
gtggagccat ttaagaataa ggcttaaaaa cagaaggact atttttagga gcatagtccc 19320  
tctgccccga ccaattaaaa tgtctcacac gggcaaaatg cttaacactt ggttgatggt 19380  
gaagcacatc aagcagtatt gtcactctag agccatgcac ttaagtacac agagataagt 19440  
atcaagatac atgggactct tccctgcctg gaggtgaag gaggatttga gctcaagttg 19500  
ggttgcatag gccatcagtt gtgcttcact gagtgaacag cagagcactt tgatgcataa 19560  
ggaactgtta aaagactcaa acttgacttc ttcagtcagt ctatcccatg aaaaacactg 19620  
acagatttgg aaagtaacac ttgtagaagt tgctgggtatt cagcgaagga aatgtgttgt 19680  
tatctagctt gacttaaaat ccgacattct aataaactaa atattaattg aagagccacc 19740  
aatccaaatg tagctgacaa acttaactga aggattaata agcctgccat ttttgcata 19800

- 13/24 -

gggactgtgc taagtgattt ccatacatta tctttaattt tctcagctgc cccatgagat 19860  
atattaccat cttgatttta tcaatgatta tcgaacctaa gtagtccctt ctttgattgt 19920  
tcacaatgta ctttggatgc tgggtgtatat tttagagtca taaattcatt tatacagtca 19980  
ttatatattag aaagggcaat taacagagct ttcccgttga cacataaggg actgatattt 20040  
actgtattcc atatgcattt tgattttttc taatatctat ggtattaata aaaggatgt 20100  
tactatctct gcataagact attgatgttg agtcaatgag taaacatgga gattaaacag 20160  
acttttacag tgaaccttat taaaataaga gttttattat tacatttatg tacgctattt 20220  
taaagtatat aggatata cagcagattt atttcttcta tacttttggg aattgaaagg 20280  
agagaaatga ataagactgt aaaagttagc ttcaatatct ttcaaatgc agtgtattaa 20340  
aaaatataaa gttgaaaatt ttgggtttag ttaaactctt ttaaaacaaa tccaccttgt 20400  
ttcccaaatt tttcttcaat ggaattaatt tctatgtttt gcctgctact cctcttaaga 20460  
ggattgtagc ttttcttagt caatgatgga tgctctttct aagtttgtaa gcttatgttt 20520  
atgtaagaag tcaaatgcct ggctgcttat ctaagaacct gcttctttac agattgatgt 20580  
gaagaagcct agggaaaagg gagcccttaa tttctaggag attagcttgt taagattgaa 20640  
aatgctttc tgaactttta tatactgtaa cactaagaat aaaaacatat caattttata 20700  
tcagggaaat gtaattattt atatttaatt tatgtatcct attatcaagt tttattttat 20760  
ctagcttctg tagtgcttca atgggtgttg ctgttatttt tgttaaaaaat tgaatgacaa 20820  
gtcatggaaa gtgaaggctt tagagaaagt agctgaatga atatcataat aaaatgggat 20880  
atggattata attaattgaa aggagcagat aatttctttt ttgtagccaa gtaatagcta 20940  
agttgatcat agtttcagga ttgccatttg tctgggattt cttacagttt ctttggggaa 21000  
gggaggcact caaatggta aatagaaggga agaactctga aaaggaagta tattttactt 21060  
ccaaaatatt tttatcttct atatctgcat gtcaagggtg gagcagttgg aaattcagac 21120  
aaaacctcta cttcatttag attaatctg ggaaaaactc cttagtgtt aaccaaatta 21180  
cttgagtga aaagtaggtc ttgtagaaag atatttattt tggagtgggt acatgtgcta 21240  
aacatttcta atgaaaatag tagacactgg gtaaataaat cattagtttg agaacatttg 21300  
cacagttcac taatctctaa tagttgatgg atgctatgaa gcacgttcac ttaagccagg 21360  
acacacaaaa atgcctgcta gctgggggtt tgaatttctc atctgattct gccaaatggc 21420  
atttcaaaaa gggcaatctt atcttttggt aaatacagaa tagggagaac atgaatagaa 21480  
agaggetcca cttgccagtc aaaccaagcg aggacagttg ggtagttaca gtttgtttgc 21540  
tacacgttct catacttgag gcaactaatt ctggaagac tgaaatgtga agctttttaga 21600

- 14/24 -

attccttagt aactaatttc tgtcatgtgt gttgtactgg tagaataagt ttttgtgacg 21660  
aaattggaac attaatgggg ggaatggttg attagctggg tttatatattt tcaaggatta 21720  
ctttcttcta atcctttata gtccaaaatc tctaaaatat gtgggaaagt actcagatta 21780  
aagtggtttg caattatgtg cctaagaagt ttttgaaatg ttgactcatt tggataaacg 21840  
gtgttttcct ctatataatg tccatggata gtgaactgga gcaatgaggg tactgggaga 21900  
aatgccactg gctttttact gatattttta cttctttctt ggtgttttaa aacttctctt 21960  
tttaaaagct catttactag aagcaggaat ctgaacaact tgactctttt aaaggggaga 22020  
gatacagaaa agaagcagat ctgtactttc tagattctga gtcacatact ttaactttgc 22080  
aactgaaggc aatttgttgt tacattgata agtaaagcaa gtcttgtgag atagattggg 22140  
tgccaatata tccattgaga gaggtagaat aatgccattg acacgtgaga atatattcca 22200  
tagcacgtga gggaaaggaa tgttggagtg tctgacttca atgcagatgg aggaaataag 22260  
atctagtggg gaccattttt attcaagaag taaatatagc ccacttagag gagaatataa 22320  
aagataatct gtactgaaca caaaggaaaa aaggacctaa tatccgaaca aagaagaaaa 22380  
tgtagccac ctaaaggaga atataaaaga taatctgtac tgaccacaaa gaaagaaagg 22440  
agctaatac tgaacagtga gccaaagtga ggaagggtgaa aagattgcag aaccagtttg 22500  
ggaacactac tgagcaggac aattttataa cattacagag gccactact tgagaaaacc 22560  
tgtaaatgga cctgataaaa cagtgtcgac aaggaataaa gcatatttaa gtattaggtc 22620  
ttttcatata gtaaaattaa catagttaa attcctcttg gcagcaattg gaactgcaca 22680  
tgcatatata cacatccaaa atggaatttt agagaaaaat tgtatcagat tgttgactca 22740  
atctttgatt ctctaaatgg atttctcaaa agcacatgca cacacatgca taaatacatg 22800  
caaatatata cacagccaca aattggaaag agagcagggc tgagcattag gtcagggtgtg 22860  
ttgttttatg tcacacacta cagtctaagg caaaaatatac tggctgactt ttctgttcca 22920  
ttcgttgaat atcaagtga taagaattaa ctaaagagaa gcctactttg gctttttttg 22980  
aatggggtag ctattatgtg tcatattatt atcagctttt cttgtctttt atcccagtca 23040  
tttgggctaa agttaaagag ataaagacta agtgccatga tgtgactgca gtagtggagg 23100  
tgaaggagat tctaaagtcc tctctggtaa acattccacg ggacactgtc aacctctata 23160  
ccagctctgg ctgcctctgc cctccactta atgttaatga ggaatatata atcatgggct 23220  
atgaagatga ggaacgttcc aggttaattca ctctttaagg atacagaata actactttgc 23280  
ttatcctact ctcatataat ttgtctctag agatgctacc ctgcattttt tacattggga 23340  
tctgtctacc ttcttgggga ttacagataa gtttttagttg ggtttcttga tttcatatat 23400

- 15/24 -

ggaatgggtg tatgcgtgta gtttataggt ttacatTTTT cttgggagag gggccataac 23460  
 ttcatTTTgtt tcttaaagggt gtctgtgact taaaaatgggt taataattac tgttctaaat 23520  
 cttagctgtc ctattcaaga ataaacatgt aagtctTTTct tgttcaagta ctgTTTctctt 23580  
 gtactTTTtca gtaacagggtt ttaatTTTTc aaaaatgTTT gcttctTTTca aaaatacaga 23640  
 ttactcttgg tggaagggtc tatagctgag aagtggagg atcgacttgg taaaaaagtt 23700  
 aaggtaagcc tgtatTTTtat gTTTgaagta atacacagaa aaaaaaaca aagtagaaaa 23760  
 ccagccatct gtcattgaaa tgaaatagct gccttcaacc atatgagaaa tattaaaaatt 23820  
 tagtatgcat atatTTtatat actccaagag ctgaatttgt cTTtaatgtc tattTTtattt 23880  
  
 aaggaatgag ttccctgtat gtgtatcaaa gatctaacta cagttgcctt aatgtctctt 23940  
 cacaaggagt ctagctgtag tccagtcctg gtaggggtgtt tcatgttgt caggctcctt 24000  
 ctagcttacc actctaccat tTTtaaggc atcgctTTTca tactcatgtt cacctggagg 24060  
 tcacaagatg gctgctctgc ctctagtacc acatgtacat ttcaggcagg aaaaagagga 24120  
 ggtaaaagggt atttccaaga gcctcatcaa gcagttTTTta cttagctgca aaacaggcta 24180  
 gaaaatgtag tctTTTTTaaa cctgggggata ttgcttctTT gaacaaactg cagtttTgtga 24240  
 gaaggggaga ataaatgatg ggaaggaaaa taaacaatga tgtccgatga ataaacagca 24300  
 attcctatgt acaaagtgtg gctacattca tctgtataga agagatctga ataaattagg 24360  
 tccttagagc agtaatgtag ctttattTTT aagccaaata actcttagat tgtggaattg 24420  
 atacatTTTt taaaatcaca tagtacagta ctgtattata gaaggTTTtg tttcttctta 24480  
 ctgcactaag caaatctgtt ttaaagaaaa gaatgggggtg ggggaatgca tggggggaca 24540  
 aaaaaatctc aaaggatgtg tgggtgggtg gggggagtgg gaactgtacc aaacataata 24600  
 catcctcttc cttctgcaag tttgaaggct tgggaaacat ttacatggta agttaaacac 24660  
 ccctggggcg tttatcttat acatctggca cttgacacgg cagacacgtt tgggtTTtaag 24720  
 tgacctacaa aaatgtagag ggcattattt tgtaaggaga aactacctc cagtaagtct 24780  
 ttctccctt cagtagattt gtcaaaagggt agatgcattt caagttcaga cttgcgggca 24840  
 ttctctctgc atctctcttc aattagTTTg gtgtttatta aagaaaaaag tggctcttgt 24900  
 tcagtatgtt ggaatctctt actgtctTTa atttggtTTt ctgcttgcta atgcagaact 24960  
 ggaatttTgt ctaaattcct gtaccagttg gaaaagcttt caatatccct gctgcgaagc 25020  
 atgtaacaag gcttactgct cctctTTTtg taccaaaaca atatcattgt gttgttgaca 25080  
 ggacacatgg cttgttTgtc ctgtttccca ttgcttTctg caatatttcc cattgttttc 25140

- 16/24 -

cgcaggggac ttgcagagtt attattgtaa agtcatttat attctcagtc tggattttaa 25200  
 tattctaaag gaaagaaacc aataatttga acaatttttaa attcatatgc agatattgag 25260  
 ggctaaagag tttgggtaga aaatctcctt tggccagaat tattgagatt cctatttttag 25320  
 ttttccagtc aatttgaaga tgtgtaaaaa gagttttatg gaggatgtta ttttttcaat 25380  
 cagatttgct cttagctgag ttttgctctc agtggatgaa tcaataattt tataagaaac 25440  
 attattatgt ttttttcatg caaatgggtg tttacctgag tctcttatag cagacgattc 25500  
 aagatgtttg gtcttccttg ggaagttag aatcagactg tttttaaaat atgaagacaa 25560  
 gattgtggag taaagaatac tgaaatgaag aattaccttc agtaacagaa aaacaataac 25620  
 acatttacta tgtgctaagc actttatatt tttattaatc ttcagatgta tctacttata 25680  
 agtagattct attatcagtt ccaacatata catgatgaaa atgaggtcta gtaagttcaa 25740  
 gaaacttcat acagtaagtg gtggagtttag aatttgaact tgggccatct gacccaagga 25800  
 tctgatggtg cttgctcttt aaagtgtggt ccctggatca gcaacatagg tatcacctgg 25860  
 gagcttgta gtaatgaaaa tcttcggccc tgtctcagac ctgctaaatg agaatttgca 25920  
 attttaacaa attccccata tgatatccgt gtttgaagtt tgggaagtac agctgtagtt 25980  
 cgtattccct acctatctc atgtaatata acttccattt aacttaaatt acatgaaaat 26040  
 attattgaca ttgttaatat gaaatattac taaacttgat tgtgtttatt aaaaacattg 26100  
 ctaatacctg ctttgtaaca cttagaacga gggcaggacc ttgtctgttt tattcattgt 26160  
 acttagtgga tattacttag aaaaatattt ttgagacccc cccatccctc aaaaaaattt 26220  
 ccattttttt ttcaactgctc aaatcacata gactttaaaa ggctatgttc ttatgtgtat 26280  
 taagagagga tgttgaaaaa tagccttccc ttcaaattct gtgtgtaaatt cttccatttg 26340  
 ttgagtatct gtgaagcact agcctcctgt atgttacctc aggaaatacc cagagatata 26400  
 gggagatatt tctgtcatca tttatagaca tggacatttt aagtttaagg tttgataaga 26460  
 aagcattact aaatacatta tagatgttgc gcttggttaa gtcagagaat aatgttcata 26520  
 ttgcatcagt tttcttgta ccctgggaaa tagattgata cttttggaaa agtagcaaaa 26580  
 tgcttcagag atctgaactt gcagtctgac ccagttgtta gaatcatgga aataatgacc 26640  
 ctggtgatat gtgcttgta ctattttcta ttttaaattt cacagcgctg ggatatgaag 26700  
 cttcgtcatc ttggactcag taaaagtgat tctagcaata gtgattccac tcagagtcag 26760  
 aagtctggca ggaactcgaa ccccgga gacgcaact aaatcccgaa atacaaaaag 26820  
 taacacagtg gacttctat taagacttac ttgcattgct ggactagcaa aggaaaattg 26880  
 cactattgca catcatattc tattgtttac tataaaaaatc atgtgataac tgattattac 26940



- 17/24 -

ttctgtttct cttttggttt ctgcttctct cttctctcaa cccctttgta atgggtttggg 27000  
ggcagactct taagtatatatt gtgagttttc tatttcacta atcatgagaa aaactgttct 27060  
tttgcaataa taataaatta aacatgctgt taccagagcc tctttgctgg agtctccaga 27120  
tggttaattta ctttctgcac cccaattggg aatgcaatat tggatgaaaa gagaggtttc 27180  
tggtattcac agaaagctag atatgcctta aaacatactc tgccgatcta attacagcct 27240  
tatttttgta tgccttttggt gcattctcct catgcttaga aagttccaaa tgtttataaa 27300  
ggtaaaatgg cagtttgaag tcaaagtca cataggcaaa gcaatcaagc accaggaagt 27360  
gtttatgagg aaacaacacc caagatgaat tatttttgag actgtcagga agtaaaataa 27420  
ataggagctt aagaaagaac attttgcctg attgagaagc acaactgaaa ccagtagccg 27480  
ctgggggtgtt aatggtagca ttcttctttt ggcaatacat ttgatttggt catgaatata 27540  
ttaatcagca ttagagaaat gaattataac tagacatctg ctgttatcac catagttttg 27600  
tttaatttgc ttctttttaa ataaacccat tggtgaaagt cttttttttt ctcttctttt 27660  
aaaataaatc agaattgccg tattgaccag gaaaagatta tgtatgcacg tgcaccaggg 27720  
  
ttagttttta aaagtacatg gctccataaa aatgctgtag attacagagt gataaaatat 27780  
gcaggttttt ttgtttttgt ttttctgtt gtgtgtgtgt ctgtatttgt gtacatgtgt 27840  
gtccttgac tcacacccaa gggtaggatta aaatacaggc ctgcaaactg gcctgcactt 27900  
tatcatttgg gatttgtgct gcttaatgct cagcgaaaaa tgtctagtaa aatgaattat 27960  
ggttgtcagg agagaggtta ttctgacttt tgaaccaatt gcacatttct cattacccaa 28020  
gctgtggtga gatcccagg gctgtggtga acaaatgatg cttttataga tgggccctag 28080  
cttacaatga ttcaatttac aatgcttcaa ttaacaatt tgttgactta caatgggttt 28140  
atcaggttgt aaccaatgc atttcaactt acgatatttt cagtttcgaa tgggtttatc 28200  
cagatgtaac cccatcgtaa atggcggagc atctgtactt ccttctctg gcagagttcc 28260  
ttagagcctg tgccaattac ttgaaagttt cattctctgc catttacatg tgtgctatta 28320  
gtagaaccaa atttctaagc tgtggcgtgc tgaaaataaa atgcttatga agcaaaaatc 28380  
gtgctatgtt tccttctaca aggataatca agcaaggatg aaattcattc ctgaacaaaa 28440  
gtttcctaaa atggtaaata atcatctatc taaatgttct attttaaaag tgtgagctgg 28500  
gtgtggtgag tgcacctgta atccccacta cttggggaggc tgaggaagga agacggctag 28560  
agcccatgag gttgaagctg cagtaagcta tgattgcggc cactgtactc cagcgtaggc 28620  
gatagagcat gaccctgtct ctgtaacaac aacaaaagtg tgaaagttca ttctacaaat 28680  
tggagtcaat catatcatc ccaactaaaa tggagttggg aggccatggg gaaaggcacc 28740

- 18/24 -

cagggtccctg ttccaggaac cattttttgca gttcaacaga aaaatcacga agacctaaact 28800  
 ctaaccttaa gataaagtta cctagctgct gccactcacc aatcagaact tgctagatcc 28860  
 tacaagacgc gcctgctcca gtgactttca ttcaaaacca tntagatcac cttcctctct 28920  
 tccccaataa aaccccagcc tttctctttg tctntgaaca caactagagg ctacactggg 28980  
 ttgtgtgccc agaattacaa ttccaattct tatattccca aataaacctt ttacttggag 29040  
 atttatctcc ctatatttaa aggtgacaga gtaagggaac attcctgcct tctgattgac 29100  
 tctccaaagc caacaatttc cccagcccca gaagaaaaca ttcccacctt tgcctatagg 29160  
 actgcatagt cttttgagct tccaaaagac cacttccaaa gggcttgcca tctgcccatt 29220  
 gttgctatat tctcagatgg caaggacatc tcttttgagg tgctgatgtc ctacccttaa 29280  
 aagggtgagtt ggggtgtcact ggggagtaat gaagcgccac cgtggatgga ctgcccctga 29340  
 gaatctctct tcttggatg taagcctcaa cttgagcctg aggacagagg ggtggaaagt 29400  
 agtgcctggg cctcagcctg ttttcctcag gctttctcac gttaactctg taaagaagga 29460  
 caagaattga ctacaggaga gggttaaagg aaccgttatc tcaaattcac aaacctcaac 29520  
 tctctcaatg cacagtaagc aatgttaagt aaggaactct tttgatgtat aaaagctgca 29580  
 gatgtttcca gcttctgcag ttttttttgg ggggtggggg ttgggtaaag ggggtatgat 29640  
 cagtttctgt gtaggaattt gacacacttt atgcttaata taaacaaaac acggccagat 29700  
 tcttagattc agcagttttt ttttttttta aaccaccttc cattcggtgc cattttacaa 29760  
 cctactgttt taccactacc atctatagtg gcaatgtttg attttgctca cctatatgag 29820  
 gcttctgtca gctgttttaa catttcta atgtataaagc ccatgaataa agtacatttg 29880  
 gtttttcagt ttgatagcta caatatcttc attaataaac tgtgcagacc tcttttggga 29940  
 ggatggcgtg atttatcatg atggtcacgt ttctcaggag actgcaaaac catttctact 30000

<210> 2  
 <211> 2058  
 <212> DNA  
 <213> Homo sapiens

<400> 2  
 gttgggaaag agcagcctgg gcggcagggg cggtggctgg agctcggtaa agctcgtggg 60  
 accccattgg ggaatttga tccaaggaag cggtgattgc cgggggagga gaagctccca 120  
 gatccttggt tccacttgca gcgggggagg cgagacggc ggagcgggccc ttttggcgctc 180  
 cactgcgcgg ctgcacctg cccatcctg ccgggatcat ggtctgcggc agcccgggag 240  
 ggatgctgct gctgcgggccc gggctgcttg ccctggctgc tctctgcctg ctccgggtgc 300

- 19/24 -

ccgggggctcg	ggctgcagcc	tgtgagcccg	tcgcgcatccc	cctgtgcaag	tccctgccct	360
ggaacatgac	taagatgccc	aaccacctgc	accacagcac	tcaggccaac	gccatcctgg	420
ccatcgagca	gttcgaaggt	ctgctgggca	cccactgcag	ccccgatctg	ctcttcttcc	480
tctgtgccat	gtacgcgccc	atctgcacca	ttgacttcca	gcacgagccc	atcaagccct	540
gtaagtctgt	gtgcgagcgg	gcccggcagg	gctgtgagcc	catactcatc	aagtaccgcc	600
actcgtggcc	ggagaacctg	gcctgcgagg	agctgccagt	gtacgacagg	ggcgtgtgca	660
tctctcccga	ggccatcggt	actgcggacg	gagctgattt	tcctatggat	tctagtaacg	720
gaaactgtag	aggggcaagc	agtgaacgct	gtaaatgtaa	gcctattaga	gctacacaga	780
agacctattt	ccggaacaat	tacaactatg	tcattcgggc	taaagttaaa	gagataaaga	840
ctaagtgcc	tgatgtgact	gcagtagtgg	aggtgaagga	gattctaaag	tcctctctgg	900
taaacattcc	acgggacact	gtcaacctct	ataccagctc	tggtgcctc	tgccctccac	960
ttaatgttaa	tgaggaatat	atcatcatgg	gctatgaaga	tgaggaacgt	tccagattac	1020
tcttggtgga	aggctctata	gctgagaagt	ggaaggatcg	actcggtaaa	aaagttaagc	1080
gctgggatat	gaagcttcgt	catcttgga	tcagtaaaag	tgattctagc	aatagtgatt	1140
ccactcgag	tcagaagtct	ggcaggaact	cgaacccccg	gcaagcacgc	aactaaatcc	1200
cgaaatacaa	aaagtaacac	agtggacttc	ctattaagac	ttacttgcac	tgctggacta	1260
gcaaaggaaa	attgcactat	tgcacatcat	attctattgt	ttactataaa	aatcatgtga	1320
taactgatta	ttacttctgt	ttctcttttg	gtttctgctt	ctctcttctc	tcaaccctt	1380
tgtaatgggt	tgggggcaga	ctcttaagta	tattgtgagt	tttctatttc	actaatcatg	1440
agaaaaactg	ttcttttgca	ataataataa	attaacatg	ctgttaccag	agcctctttg	1500
ctggagtctc	cagatgttaa	tttactttct	gcaccccaat	tgggaatgca	atattggatg	1560
aaaagagagg	tttctggtat	tcacagaaag	ctagatatgc	cttaaaacat	actctgccga	1620
tctaattaca	gccttatttt	tgtatgcctt	ttgggcattc	tcctcatgct	tagaaagttc	1680
caaatgttta	taaaggtaaa	atggcagttt	gaagtcaaat	gtcacatagg	caaagcaatc	1740
aagcaccagg	aagtgtttat	gaggaaacaa	cacccaagat	gaattatttt	tgagactgtc	1800
aggaagtaaa	ataaatagga	gcttaagaaa	gaacattttg	cctgattgag	aagcacaact	1860
gaaaccagta	gccgctgggg	tgtaaatgg	agcattcttc	ttttggcaat	acatttgatt	1920
tgttcatgaa	tatattaatc	agcattagag	aaatgaatta	taactagaca	tctgctgtta	1980
tcaccatagt	tttgtttaat	ttgcttcctt	ttaaataaac	ccattgggtga	aagtcccaaa	2040
aaaaaaaaaa	aaaaaaaaaa					2058

- 20/24 -

&lt;210&gt; 3

&lt;211&gt; 23

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 3

atagtaggag gagtactgtg tcg

23

&lt;210&gt; 4

&lt;211&gt; 24

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 4

aatagtagga ggagtactgt gtca

24

&lt;210&gt; 5

&lt;211&gt; 24

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 5

ccctgtggac tatcacctaa tggt

24

&lt;210&gt; 6

&lt;211&gt; 18

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 6

ataggccatc agttgtgc

18

&lt;210&gt; 7

&lt;211&gt; 19

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 7

cataggccat cagttgtgt

19

&lt;210&gt; 8

&lt;211&gt; 21

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 8

tcaaagtgct ctgctgttca c

21

&lt;210&gt; 9

&lt;211&gt; 22

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

- 21/24 -

<400> 9  
gatcttatatt cctccatctg ct 22

<210> 10  
<211> 21  
<212> DNA  
<213> Homo sapiens

<400> 10  
atcttatattc ctccatctgc a 21

<210> 11  
<211> 20  
<212> DNA  
<213> Homo sapiens

<400> 11  
cgtgaggga aggaatgttg 20

<210> 12  
<211> 22  
<212> DNA  
<213> Homo sapiens

<400> 12  
ttgtctttta tcccagtcac tc 22

<210> 13  
<211> 22  
<212> DNA  
<213> Homo sapiens

<400> 13  
ttgtctttta tcccagtcac tt 22

<210> 14  
<211> 25  
<212> DNA  
<213> Homo sapiens

<400> 14  
catcatggca cttagtcttt atctc 25

<210> 15  
<211> 26  
<212> DNA  
<213> Homo sapiens

<400> 15  
aaaaatgtaa acctataaac tacacg 26

<210> 16

- 22/24 -

<211> 27  
<212> DNA  
<213> Homo sapiens

<400> 16  
gaaaaatgta aacctataaa ctacaca

27

<210> 17  
<211> 25  
<212> DNA  
<213> Homo sapiens

<400> 17  
tcttgatttc atatatggaa tgggt

25

<210> 18  
<211> 26  
<212> DNA  
<213> Homo sapiens

<400> 18  
acagtacttg aacaagaaag acttat

26

<210> 19  
<211> 26  
<212> DNA  
<213> Homo sapiens

<400> 19  
acagtacttg aacaagaaag acttac

26

<210> 20  
<211> 28  
<212> DNA  
<213> Homo sapiens

<400> 20  
actgttctaa atcttagctg tcctattc

28

<210> 21  
<211> 22  
<212> DNA  
<213> Homo sapiens

<400> 21  
ctcccttttg acaaattctac tg

22

<210> 22  
<211> 23  
<212> DNA  
<213> Homo sapiens

<400> 22  
tctccctttt gacaaattcta cta

23

- 23/24 -

<210> 23  
<211> 25  
<212> DNA  
<213> Homo sapiens

<400> 23  
gaaactaccc tccagtaagt tcttc

25

<210> 24  
<211> 17  
<212> DNA  
<213> Homo sapiens

<400> 24  
ttcgggattt agttgcg

17

<210> 25  
<211> 17  
<212> DNA  
<213> Homo sapiens

<400> 25  
ttcgggattt agttgcc

17

<210> 26  
<211> 20  
<212> DNA  
<213> Homo sapiens

<400> 26  
gtctggcagg aactcgaacc

20

<210> 27  
<211> 18  
<212> DNA  
<213> Homo sapiens

<400> 27  
tgggggcaga ctcttaag

18

<210> 28  
<211> 18  
<212> DNA  
<213> Homo sapiens

<400> 28  
tgggggcaga ctcttaaa

18

<210> 29  
<211> 27  
<212> DNA  
<213> Homo sapiens

- 24/24 -

&lt;400&gt; 29

catgattagt gaaatagaaa actcaca

27

&lt;210&gt; 30

&lt;211&gt; 23

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 30

gactgaagaa gtcaagtttg agt

23

&lt;210&gt; 31

&lt;211&gt; 22

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 31

actgaagaag tcaagtttga gg

22

&lt;210&gt; 32

&lt;211&gt; 21

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 32

tgaacagcag agcactttga t

21

&lt;210&gt; 33

&lt;211&gt; 20

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 33

gtcggcattc ttatcattca

20

&lt;210&gt; 34

&lt;211&gt; 18

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 34

cggcattctt atcattcg

18

&lt;210&gt; 35

&lt;211&gt; 25

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 35

aataagtctc atccatactc aaccc

25